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PATENT

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March 12, 2002
Amela J. Halo 03/12/02
SIGNATURE DATE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Roger A. McCurdy
Serial No. : 09/494,954
Filing Date : February 1, 2000
For : METHOD AND APPARATUS FOR
CONTROLLING AN ACTUATABLE
OCCUPANT PROTECTION DEVICE
USING AN ULTRASONIC SENSOR
Group Art Unit : 3611
Examiner : L. Lum
Attorney Docket No. : TRW(TE) 4170
Assistant Commissioner for Patents
Washington, D.C. 20231

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GROUP 3600

RESPONSE

Sir:

In response to the Office Action dated December 12, 2001,
reconsideration of the above-identified patent application in
view of the following remarks is respectfully requested.

The Office Action of December 12, 2001 rejected
claims 5-7 under 35 U.S.C. §112, second paragraph as being
indefinite for "said accelerometer" in claim 5 lacking
antecedent basis. This rejection is traversed. Claim 5
depends, via claim 4, from claim 2. Claim 2 provides proper
antecedent basis for "said accelerometer." Therefore, this
rejection is improper and should be withdrawn.

The Office Action of December 12, 2001 rejected claims 1-7, 10, 12, 13, and 17-22 as anticipated under 35 U.S.C. §102(e) by Breed, U.S. Patent No. 6,209,909 ("Breed '909"). The Office Action rejected dependent claims 8, 11, and claims 14-16 under 35 U.S.C. §103 as obvious over Breed '909 in view of Foo et al., U.S. Patent No. 6,036,225 ("Foo et al. '225").

The rejection of the claims is respectfully traversed. Anticipation requires a single prior art reference that discloses each element of the claim. W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983) *cert. denied* 469 U.S. 851 (1984). For a reference to anticipate a claim, "[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." Scripps Clinic & Research Foundation v. Genentech Inc., 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). Breed '909 fails to anticipate claims 1-7, 10, 12, 13, and 17-22. Therefore, it is respectfully submitted that claims 1-22 are in a condition for allowance.

Breed '909 appears to teach a side impact airbag system having an anticipatory sensor system for anticipating a side impact crash. (Breed '909, Col. 7, lines 35-42). The system includes a transmitter 130 that transmits waves 132 outwardly of the vehicle 110 toward an approaching vehicle 120. The system also includes two receivers 134 and 136 for receiving returned waves. (Breed '909, Col. 7, lines 35-60). A neural computer 145 performs a pattern recognition determination

using signals from the two receivers 134 and 136. (Breed '909, Col. 7, lines 52-60). The anticipatory sensor system classifies an approaching object and also determines the distance and approaching velocity of the approaching object. (Breed '909, Col. 10, line 65 to Col. 11, line 4). Upon detecting an impending crash, the anticipatory sensor system may trigger actuation of an inflator 540 associated with an air bag 520. (Breed '909, Col. 12, lines 16-21; and Fig. 12).

With respect to claim 1, Breed fails to disclose any of the following features:

1. an acoustic safing sensor;
2. the acoustic safing sensor being operative to sense acoustic waves propagating through the vehicle structure;
3. the acoustic safing sensor providing a safing signal having a characteristic indicative of the sensed crash event; and
4. a controller which controls actuation of an occupant protection device in response to both a crash signal from a crash sensor and the safing signal from the safing sensor indicating the occurrence of a crash event.

Each of these features of claim 1 is discussed below.

Claim 1 recites an acoustic safing sensor. The applicant's disclosure clearly defines a safing sensor as a sensor that produces a safing signal that is input into one input of an AND gate to verify the occurrence of a crash event. An occupant protection device is not actuated unless a crash sensor and the safing sensor both sense the occurrence of a crash event. Additionally, it is respectfully suggested

that one of ordinary skill in the art would recognize the term "safing sensor" as being a sensor for verifying a sensed condition. Breed '909 fails to disclose a safing sensor. Therefore, it is respectfully suggested that claim 1 patentably defines over Breed '909.

Claim 1 also recites that the acoustic safing sensor is operative to sense acoustic waves propagating through the vehicle structure. The Office Action states that "'[v]ehicle structure' is broadly interpreted to mean the entire vehicle, including its interior." However, the transmitted waves 132 of Breed '909 do not propagate through any structure of the vehicle 110. Breed '909 discloses transmitting waves 132 outwardly of the vehicle 110 toward an approaching vehicle 120. Return waves of Breed '909 are received by receivers 134 and 136 located adjacent the transmitter 130 on the exterior of the vehicle 110. (Breed '909, Fig. 1A). Thus, Breed '909 fails to teach sensing acoustic waves propagating through the vehicle structure. Therefore, it is respectfully suggested that, for this further reason, claim 1 patentably defines over Breed '909.

Moreover, claim 1 recites that the acoustic safing sensor provides a safing signal having a characteristic indicative of the sensed crash event. Breed '909 fails to disclose this feature of claim 1. Firstly, Breed '909 fails to disclose a sensor that produces a safing signal. Secondly, the acoustic sensor disclosed by Breed '909 produces a signal indicative of the class, distance, and approaching velocity of an approaching vehicle, but does not produce a signal indicative

of a sensed crash event, as is recited in claim 1. Since Breed '909 fails to disclose this feature of claim 1, it is respectfully suggested that, for this further reason, claim 1 patentably defines over Breed '909.

Furthermore, Breed '909 fails to disclose a controller which controls actuation of an occupant protection device in response to both a crash signal from a crash sensor and the safing signal from the safing sensor indicating the occurrence of a crash event. The Breed '909 system controls actuation of a first airbag 510 in response to a first sensor and controls actuation of a second airbag 520 in response to a second sensor. Neither sensor is a safing sensor (Breed '909, Fig. 12). However, Breed '909 fails to disclose controlling actuation of an occupant protection device in response to signals from both a crash sensor and a safing sensor. Since Breed '909 fails to disclose this feature of claim 1, it is respectfully suggested that, for this yet further reason, claim 1 patentably defines over Breed '909.

Claims 2-9 depend from claim 1 and are allowable for at least the same reasons as claim 1. Additionally, claims 2-9 are allowable for the specific limitations of each claim.

Specifically, claim 4 recites that the acoustic sensor is an omni-directional ultrasonic sensor for sensing ultrasonic acoustic waves propagating through the vehicle during vehicle crash events originating in any of a plurality of directions. Breed '909 fails to disclose this feature of claim 4. The receivers 134 and 136 of Breed '909 sense return waves from an approaching vehicle 120. Breed '909 fails to teach or suggest

that the receivers 134 and 136 receive waves originating in any of a plurality of directions. Since Breed '909 fails to disclose this feature, it is respectfully suggested that claim 4 is allowable over Breed '909.

Claim 10, 17, and 22 and their associated dependent claims are allowable over Breed '909 for reasons similar to claim 1.

It is noted that no basis for rejection has been set forth with regard to claim 9. Therefore, a response regarding the rejection of claim 9 is not possible.

Reference is now made to the rejection of claim 8 as obvious over Breed '909 in view of Foo et al. '225. As set forth above, Breed '909 fails to anticipate the invention as set forth in claim 1. Foo et al. '225 does not make up for the failed teachings of Breed '909. Therefore, claim 8 is patentable for at least the same reasons as claim 1.

Claim 11 depends from claim 10. For reasons similar to claim 1, Breed '909 fails to anticipate the invention set forth in claim 10. Foo et al. '225 does not make up for the failed teachings of Breed '909. Therefore, claim 11 is patentable for at least the same reasons as claim 10.

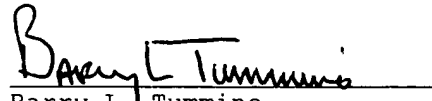
Claim 14 is patentable for reasons similar to claim 1. A combination of Breed '909 and Foo et al. '225 fails to teach or suggest each element of claim 14. Therefore, the rejection of claim 14 is improper and should be withdrawn.

In view of the foregoing, it is respectfully submitted that the above-identified patent application is in condition

for allowance, and allowance of the above-identified patent application is respectfully requested.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,


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